

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A wafer engine for moving semiconductor workpieces, comprising:
 - a linear drive assembly having a carriage, said linear drive assembly for moving said carriage between a first position and a second position along a first linear path, said first linear path defining an x-axis;
 - a support column having a first end a second end, and a longitudinal central axis;
 - a rotational drive housing mounted to said carriage, said rotational drive housing substantially enclosing a rotational drive being adapted to affix ~~having a portion affixed~~ to said first end of said support column for rotating said support column about said longitudinal central axis, said longitudinal central axis defining a substantially vertical theta axis that is substantially perpendicular to said x-axis;
 - a vertical drive column extending upward from a support member ~~z-axis drive housing including a base portion~~ having a first end and a second end ~~and an elongated body extending upward from said second end of said base portion~~, said first end of said support member ~~base portion~~ mounted to said second end of said support column such that said rotational drive rotates said support member and said vertical drive column ~~z-axis drive housing~~ about said theta axis;
 - a z-axis drive assembly having a mechanism being adapted to move ~~housed substantially within said elongated body, said z-axis drive assembly for moving~~ vertically within said vertical drive column between a first position and a second position along a second linear path, ~~said second linear path defining a substantially vertical z-axis that is offset from said theta axis; and~~
 - a ~~radial drive housing~~ slide body mounted to said mechanism ~~z-axis drive assembly~~, said ~~radial drive housing~~ slide body substantially enclosing a radial drive assembly being adapted to move an end effector between a first position and second position along a third linear path, said third linear path defining a radial axis; and

wherein said theta axis is offset from a z-axis traveling substantially through the geometric center of said slide body.

2. (Previously Canceled)

3. (Currently Amended) The wafer engine as recited in claim 1, wherein said rotational drive simultaneously rotates said vertical drive column, said support member ~~z-axis drive housing~~ and said slide body ~~radial drive housing~~ about said theta axis.

4. (Currently Amended) The wafer engine as recited in claim 1, further including an exhaust device affixed to ~~wherein~~ said rotational drive housing ~~further includes an exhaust device.~~

5. (Currently Amended) The wafer engine as recited in claim 4, wherein said exhaust device draws air located within said vertical drive column and said support member ~~elongated body, said base portion and~~ into said support column and vents the air located within said support column out through of said exhaust device.

6. (Currently Amended) The wafer engine as recited in claim 1, wherein said slide body ~~radial drive housing~~ is removably mounted to said mechanism ~~z-axis drive assembly.~~

7. (Currently Amended) The wafer engine as recited in claim 6, wherein said slide body ~~radial drive housing~~ includes at least one component selected from the group consisting of (i) an ID reader, (ii) a metrology tool, (iii) an aligner, (iv) a notch detector, (v) an edge detector, (vi) a wafer marking tool, (vii) a processing module, (viii) a wafer viewing, and (ix) an environmental control device.

8. (Currently Amended) The wafer engine as recited in claim 1, further including a fan/filter unit mounted to said slide body ~~radial drive housing~~, said fan/filter unit for drawing air within ~~into~~ said slide body ~~radial drive housing~~ into said fan/filter unit and filtering the air before venting the air out of said fan/filter unit ~~radial drive housing.~~

9-10. (Previously Canceled)

11. (Currently Amended) A wafer engine for transporting semiconductor wafers, comprising:
a first drive assembly having a mounting element, said first drive assembly being adapted
to move said mounting element ~~providing motion~~ between a first position and a second position along a first linear path, said first linear path defining an x-axis;

a support column having a first end and a second end;

a rotational drive housing mounted to said mounting element, said housing substantially enclosing a rotational drive that is ~~first drive assembly~~ and having a portion affixed to said first end of said support column, said rotational drive being adapted to rotate said support column about a longitudinal central axis of said support column, said longitudinal central axis defining a theta-axis;

a substantially L-shaped z-axis drive housing having a vertical drive column extending from a support member that is ~~an elongated vertical body and a base portion~~ affixed to said second end of said support column, said vertical drive column ~~z-axis drive housing containing~~ substantially enclosing a z-axis drive assembly having a mechanism being adapted to move ~~within said~~ vertically between a first position and a second position ~~elongated vertical body~~ along a second linear path, said ~~second linear path defining a z-axis that is offset from and~~ substantially parallel to said theta-axis;

a ~~radial drive housing~~ slide body removably mounted to said mechanism ~~z-axis drive assembly~~, said ~~radial drive housing~~ slide body substantially enclosing a radial drive assembly having a second mechanism being adapted to move between a first position and a second position along a third linear path, said third linear path defining a radial axis; and

an end effector mounted to said second mechanism; and ~~radial drive assembly~~.

wherein said theta axis is offset from a z-axis traveling substantially through the geometric center of said slide body.

12. (Previously Canceled)

13. (Currently Amended) The wafer engine as recited in claim 11, wherein said slide body ~~radial drive housing~~ includes at least one component selected from the group consisting of (i) an ID reader, (ii) a metrology tool, (iii) an aligner, (iv) a notch detector, (v) an edge detector, and (vi) a wafer marking tool.

14-23. (Previously Canceled)

24. (Cancel)

25. (Currently Amended) The wafer engine recited in claim 11, further including an exhaust device affixed to wherein said rotational drive housing ~~further includes an exhaust device~~, said exhaust device for drawing air located within said substantially L-shaped z-axis drive housing through said support column in order to vent the air out of said exhaust device.

26. (Currently Amended) The wafer engine recited in claim 25, further including a fan/filter device mounted to said slide body ~~radial drive housing~~, said fan/filter device for drawing within said slide body into said fan/filter unit ~~air into said radial drive housing~~ and filtering the air before the air is vented out of said fan/filter unit ~~back out of said radial drive housing~~.

27. (New) The wafer engine recited in claim 1, further including a fan unit mounted to said rotational drive housing for drawing air in said vertical drive housing through said support column and out of said fan unit.

28. (New) The wafer engine as recited in claim 27, wherein the air blown out of said fan unit comprises unfiltered air.